

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (currently amended) A plasma deposition system, comprising:
an electron beam source ~~having a width much larger in dimension than its thickness and~~
~~capable of sustaining an electron beam having a width larger in dimension than its~~
~~thickness and~~ having an average electron energy of at least about 1 keV in the
presence of 10 mTorr of oxygen;
magnetic means for confining said beam to pass through a gas so as to produce a plasma
sheet of pre-determined width, length, thickness, and location and having an
electron temperature of about 1.5 eV or lower;
a source location for a material source for thin films or coatings;
wherein the source location comprises one or more of a sputtering means and a
vaporization means; and
a substrate location for a substrate upon which material sputtered or evaporated from said
source is deposited as a thin film or coating.
2. (previously presented) The system according to claim 1, wherein the source location
comprises the sputtering means and said source is electrically biased above a sputtering
threshold for said material source.
3. (original) The system according to claim 2, wherein said electrical bias is selected from
DC or RF sources.
4. (original) The system according to claim 1, wherein said substrate is electrically biased.
5. (original) The system according to claim 4, wherein said electrical bias is selected from
DC or RF sources.
6. (previously presented) The system according to claim 1, wherein the relative position of
said beam, plasma, source and substrate is adjustable.

7. (previously presented) The system according to claim 1, wherein said material source is selected from the group consisting of metals, alloys, semiconductors or non-conducting materials.
8. (currently amended) The system according to claim 1, wherein said electron beam source is a linear hollow cathode beam source [[,]].
9. (original) The system according to claim 1, wherein said gas is selected from the group consisting of atomic or molecular gases or mixtures thereof.
10. (previously presented) The system according to claim 1, wherein both said source and said substrate are electrically biased.
11. (canceled)
12. (previously presented) The system of claim 1, wherein said sputtering means is selected from the group consisting of magnetrons or ion beams.
13. (previously presented) The system of claim 1, wherein said vaporization means is selected from the group consisting of electron beams, lasers or thermal sources.
14. (previously presented) The system according to claim 1, wherein said plasma sheet is located between said source material and said substrate.
15. (previously presented) The system according to claim 1, wherein the length and width of the plasma sheet are each at least about 60 cm.

16. (withdrawn) A method of depositing a film comprising:
placing a material source and a substrate into an apparatus comprising:
an electron beam source having a width much larger in dimension than its
thickness and capable of sustaining an electron beam having an average
electron energy of at least about 1 keV in the presence of 10 mTorr of
oxygen;
magnetic means for confining said beam to pass through a gas so as to produce a
plasma sheet of pre-determined width, length, thickness, and location and
having an electron temperature of about 1.5 eV or lower;
a source location for the material source comprising one or more of sputtering
means and vaporization means; and
a substrate location for a substrate upon which material sputtered or evaporated
from said source is deposited;
placing a gas into the apparatus; and
activating the electron beam source.
17. (withdrawn) The method of claim 16, further comprising the step of:
electrically biasing the source above a sputtering threshold for said material source;
wherein the source location comprises the sputtering means.
18. (withdrawn) The method of claim 17, wherein said electrical bias is selected from DC or
RF sources.
19. (withdrawn) The method of claim 16, further comprising the step of:
electrically biasing the substrate
20. (withdrawn) The method of claim 19, wherein said electrical bias is selected from DC or
RF sources.
21. (withdrawn) The method of claim 19, further comprising the step of:
electrically biasing the source.

22. (new) The system of claim 1, wherein the width of the electron beam is at least 30 times the thickness of the electron beam.

23. (new) The system of claim 1, wherein the width of the electron beam is from 30 to 100 times the thickness of the electron beam.